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The hypertrophied fruit of Bucida Buceras

MELVILLE THURSTON COOK

Specimens of the enlarged fruits of *Bucida Buceras* were recently sent to me from the New York Botanical Garden by Dr. W. A. Murrill for examination and my attention was called to the fact that they contained mites in considerable numbers. The material was collected in Jamaica by Dr. N. L. Britton.

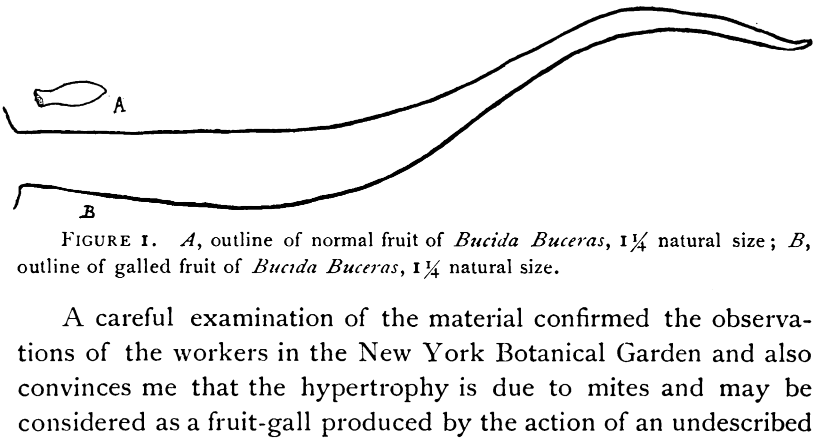

FIGURE I. *A*, outline of normal fruit of *Bucida Buceras*, 1¼ natural size; *B*, outline of galled fruit of *Bucida Buceras*, 1¼ natural size.

A careful examination of the material confirmed the observations of the workers in the New York Botanical Garden and also convinces me that the hypertrophy is due to mites and may be considered as a fruit-gall produced by the action of an undescribed species of *Eriophyes*.

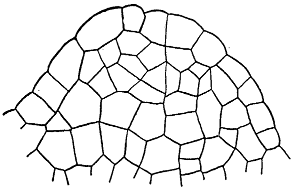

FIGURE 2. Papilla of parenchyma from ovary chamber.

An anatomical study of these enlarged fruits and comparison with the anatomy of the normal fruits present the following facts: The fibro-vascular tissues are increased in quantity but otherwise are unchanged. The parenchyma tissue was increased in quantity and also formed into great numbers of papilla-like growths (FIGURE 2) which projected into and practically filled the ovarian chamber to the sacrifice of the seeds. At the base of the pod these parenchyma-cells had evidently reached their maximum of growth and were undergoing degeneration. They contained considerable quantities of yellowish-brown substance, a part of which was tannin. Near the tip of the pod the cells were clear and evidently in a very active growing condition. The intermediate cells showed every stage between those of the two ends.

The mites were scattered throughout but were much more abundant near the tip than in any other part. Furthermore, many of those near the tip were smaller than those near the base.

Several species of mites produce hypertrophied conditions in plants grading from a simple erinium to well-defined galls. The simplest erinium may consist of unicellular outgrowths from the epidermis while the more complex forms develop masses of multicellular trichomes which are frequently accompanied with swellings of the parts from which they arise. In some instances the normal organs of the plant (usually the leaves of floral organs) become very much convoluted, while in other cases there is a swelling in which there is a well-defined cavity containing the mites. In most cases there are numerous papilla-like growths of the parenchyma projecting into these cavities.

When these hypertrophies reach a maximum growth, there is always a deposit of tannin. At this time the mites migrate towards the tip and attack the young and more actively growing parts.

From this discussion it will be readily seen that the anatomical character of these abnormal fruits corresponds with those of the well-defined *Eriophyes* galls.

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